

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1. (currently amended) A first agent configured for coupling to a bus in which said first agent is one of a plurality of agents that are capable of being coupled to said bus, said plurality of agents having corresponding arbiters coupled to receive request signals and operate as distributed arbiters among the plurality of agents, said request signals corresponding to whether or not the arbiter of a respective agent is arbitrating for said bus, ~~and wherein an arbiter of said first agent is to maintain order of its priority in relation to other agents arbitrating for said bus and to determine if said first agent wins an arbitration for said bus responsive to said request signals without determining which other agent wins arbitration, if said first agent does not win arbitration~~ and wherein if said first agent wins arbitration for said bus, said first agent to send an agent identifier with a transaction accessing said bus to notify other agents that said first agent has won arbitration, but if one of the other agents wins arbitration, said first agent to update its order of priority with respect to the other agent winning arbitration when that agent's agent identifier is received with a transaction initiated by the other agent in accessing said bus.

2. (previously presented) The first agent as recited in claim 1, wherein said arbiter of said first agent comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said first agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration.

3. (previously presented) The first agent as recited in claim 2 wherein said arbiter of said first agent further includes a circuit configured to generate a grant signal to said first agent responsive to said plurality of request signals and said state, said grant signal indicative of whether or not said first agent wins said arbitration.

4. (currently amended) The first agent as recited in claim 3 wherein said circuit is further responsive to ~~an the other agent's agent identifier used to identify a winning agent of said arbitration~~ when sent in the transaction accessing said bus by the other agent winning arbitration.

5. (currently amended) The first agent as recited in claim 2 wherein said arbiter of said first agent further comprises a circuit configured to update said state responsive to ~~an the other agent's agent identifier used to identify a winning agent of said arbitration when sent in the transaction accessing the bus by the other agent winning arbitration,~~ wherein said circuit is configured to update said state to indicate a lower priority for said winning agent ~~after said winning agent wins said arbitration.~~

6. (previously presented) The first agent as recited in claim 4 wherein said circuit is further configured to update said state to indicate that other agents are higher in priority than said first agent responsive to said first agent winning said arbitration.

7. (currently amended) The first agent as recited in claim 1 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for an address portion of said bus, ~~and wherein an agent identifier is included as a portion of a transaction.~~

8. (previously presented) The first agent as recited in claim 1 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for a data portion of said bus.

9. (currently amended) A system comprising:

a bus, in which said bus to transfer a plurality of request signals and an agent identifier transmitted with a transaction on said bus; and

a plurality of agents coupled to said bus in which each agent has a distributed arbiter included therewith, each agent to generate a respective request signal for

providing an indication of whether or not said agent is arbitrating for said bus, ~~and a respective agent identifier indicative of that respective agent, and~~ wherein the distributed arbiter of each respective agent to maintain order of its priority in relation to other agents arbitrating for said bus ~~and to determine if it wins an arbitration for said bus, but without determining which other agent wins arbitration, and wherein if a particular agent wins arbitration for said bus, the particular agent to send its respective agent identifier with a transaction accessing said bus to notify other agents that the particular agent has won arbitration and other agents not winning arbitration to receive the agent identifier of the particular agent winning arbitration to update respective order of priority.~~

10. (previously presented) The system as recited in claim 9 wherein each said arbiter comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said respective agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said respective agent for said arbitration.

11. (previously presented) The system as recited in claim 10 wherein each said arbiter further includes a circuit configured to generate a grant signal to said respective agent responsive to said plurality of request signals and said state, said grant signal indicative of whether or not said respective agent wins said arbitration.

12. (currently amended) The system as recited in claim 11 wherein said circuit for each said arbiter is further responsive to a respective winning agent's agent identifier to generate said grant signal identify which agent won said arbitration.

13. (currently amended) The system as recited in claim 10 wherein each said arbiter further comprises a circuit configured to update said state responsive to receiving an agent identifier from an agent winning said arbitration, ~~wherein said respective circuit is configured to update said state to indicate a lower priority after winning said arbitration.~~

14. (previously presented) The system as recited in claim 10 wherein each said arbiter

further comprises a circuit configured to update its respective state to indicate that other agents are higher in priority than said respective agent responsive to said respective agent winning said arbitration.

15. (previously presented) The system as recited in claim 9 wherein said bus is a split transaction bus, and wherein each said arbiter is configured to arbitrate for an address portion of said bus, and wherein said agent identifier is included as a portion of an address transaction.

16. (currently amended) The system as recited in claim 9 wherein said bus is a split transaction bus, and wherein each said arbiter is configured to arbitrate for a data portion of said bus, and wherein said agent identifier is included as a portion of a data transaction.

17. (currently amended) A method comprising:

maintaining in a distributed arbiter for a first agent, a state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority than said first agent for an arbitration, and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration;

arbitrating for the bus by sending a request signal;

receiving request signals of other agents arbitrating for the bus; ~~and~~

determining the state of the first agent in relation to priorities of other agents arbitrating for the bus to determine if the first agent wins said arbitration, but without determining which other agent wins arbitration, ~~if said first agent does not win arbitration;~~

sending an agent identifier with a transaction from said first agent, if said first agent wins said arbitration to notify other agents that said first agent has won arbitration;

receiving an agent identifier of an agent winning arbitration with a transaction initiated by the winning agent in accessing said bus, if said first agent does not win arbitration; and

using the received agent identifier from the winning agent to update said state of

priority.

18-19. (canceled)

20. (previously presented) The method as recited in claim 17 wherein said determining includes being responsive to agent identifiers included with the request signals.

21. (previously presented) The method as recited in claim 17 further comprising updating said state for said first agent to indicate that each of said plurality of agents requesting arbitration is higher priority than said first agent if said first agent wins said arbitration.

22. (currently amended) A distributed arbiter comprising:

one or more registers of the distributed arbiter of a first agent configured to store a state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority than said first agent for an arbitration, and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration; said first agent and plurality of agents having respective distributed arbiters to determine priority of arbitration requests for said bus and said arbiter for said first agent to compare arbitration requests from other agents to said state stored in said one or more registers to determine if said first agent wins said arbitration, but without determining which other agent wins arbitration, if said first agent does not win arbitration; and

a first circuit coupled to receive an agent identifier indicative of a second agent winning arbitration of said bus if said first agent does not win arbitration, said agent identifier from said second agent transmitted on said bus as part of a transaction from a distributed arbiter of said second agent to notify other agents that said second agent has won arbitration, wherein said first circuit is configured to update said state responsive to said agent identifier from said second agent.

23. (previously presented) The arbiter as recited in claim 22 wherein said first circuit in said first agent is configured to update said state to indicate that said second agent is

lower priority than said first agent if said second agent wins arbitration.

24. (previously presented) The arbiter as recited in claim 22 further comprising a second circuit coupled to said one or more registers and coupled to receive said arbitration requests, wherein said second circuit is configured to determine if said first agent wins said arbitration responsive to said state and said arbitration requests.

25. (previously presented) The arbiter as recited in claim 24 wherein said first circuit is configured to update said state to indicate that other agents are higher priority than said first agent responsive to said first agent winning said arbitration.

26. (previously presented) The arbiter as recited in claim 24 wherein said second circuit is configured to determine if said first agent wins said arbitration using the agent identifiers to identify agents that generate arbitration requests.

27. (previously presented) The arbiter as recited in claim 22 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate to place an address on said bus.

28. (previously presented) The arbiter as recited in claim 22 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate to place data on said bus.

29. (previously presented) The arbiter as recited in claim 27 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate to place data on said bus.

30-31. (canceled)

32. (currently amended) A carrier medium comprising a database which is operated upon by a program executable on a computer system, the program operating on the

database to perform a portion of a process to fabricate an integrated circuit including circuitry described by the database, the circuitry described in the database including a first agent configured for coupling to a bus in which said first agent is one of a plurality of agents that are capable of being coupled to said bus, said plurality of agents having corresponding arbiters coupled to receive request signals and operate as distributed arbiters among the plurality of agents, said request signals corresponding to whether or not the arbiter of a respective agent is arbitrating for said bus, ~~and wherein an arbiter of said first agent is~~ is to maintain order of its priority in relation to other agents arbitrating for said bus and ~~is configured to determine if said first agent wins an arbitration for said bus responsive to said request signals without determining which other agent wins arbitration, if said first agent does not win arbitration and wherein if said first agent wins arbitration for said bus, said first agent to send an agent identifier with a transaction accessing said bus to notify other agents that said first agent has won arbitration, but if one of the other agents wins arbitration, said first agent to update its order of priority in respect to the other agent winning arbitration when that agent's agent identifier is received with a transaction initiated by the other agent in accessing said bus.~~

33. (previously presented) The carrier medium as recited in claim 32, wherein said arbiter of said first agent comprises one or more registers configured to store a state indicative of: (i) which of said plurality of agents are higher priority than said first agent for said arbitration; and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration.

34. (previously presented) The carrier medium as recited in claim 33 wherein said arbiter of said first agent further includes a circuit configured to generate a grant signal to said first agent responsive to said plurality of request signals and said state, said grant signal indicative of whether or not said first agent wins said arbitration.

35. (currently amended) The carrier medium as recited in claim 34 wherein said circuit is further responsive to ~~an~~ the other agent's agent identifier used to identify a winning agent of said arbitration when sent in the transaction accessing said bus by the other agent

winning arbitration.

36. (currently amended) The carrier medium as recited in claim 33 wherein said arbiter of said first agent further comprises a circuit configured to update said state responsive to said the other agent's agent identifier, wherein said circuit is configured to update said state to indicate a lower priority after winning said arbitration when sent in the transaction accessing said bus by the other agent winning arbitration.

37. (previously presented) The carrier medium as recited in claim 36 wherein said circuit is further configured to update said state to indicate that other agents are higher in priority than said first agent responsive to said first agent winning said arbitration.

38. (currently amended) The carrier medium as recited in claim 32 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for an address portion of said bus, ~~and wherein an agent identifier is included as a portion of a transaction.~~

39. (previously presented) The carrier medium as recited in claim 32 wherein said bus is a split transaction bus, and wherein said arbiter for said first agent is configured to arbitrate for a data portion of said bus.

40. (currently amended) A carrier medium comprising a database which is operated upon by a program executable on a computer system, the program operating on the database to perform a portion of a process to fabricate an integrated circuit including circuitry described by the database, the circuitry described in the database including a distributed arbiter comprising:

one or more registers of the distributed arbiter of a first agent configured to store a state indicative of: (i) which of a plurality of agents coupled to a bus are higher priority than said first agent for an arbitration, and (ii) which of said plurality of agents are lower priority than said first agent for said arbitration; said first agent and plurality of agents having respective distributed arbiters to determine priority of arbitration requests for said

bus and said arbiter for said first agent to compare arbitration requests from other agents to said state stored in said one or more registers to determine if said first agent wins said arbitration, but without determining which other agent wins arbitration, if said first agent does not win arbitration; and

a first circuit coupled to receive an agent identifier indicative of a second agent winning arbitration of said bus if said first agent does not win arbitration, said agent identifier from said second agent transmitted on said bus as part of a transaction from a distributed arbiter of said second agent to notify other agents that said second agent has won arbitration, wherein said first circuit is configured to update said state responsive to said agent identifier from said second agent.

41. (previously presented) The carrier medium as recited in claim 40 wherein said first circuit in said first agent is configured to update said state to indicate that said second agent is lower priority than said first agent if said second agent wins arbitration.

42. (previously presented) The carrier medium as recited in claim 40 wherein said arbiter further comprises a second circuit coupled to said one or more registers and coupled to receive said arbitration requests, wherein said second circuit is configured to determine if said first agent wins said arbitration responsive to said state and said arbitration requests.

43. (previously presented) The carrier medium as recited in claim 42 wherein said first circuit is configured to update said state to indicate that other agents are higher priority than said first agent responsive to said first agent winning said arbitration.

44. (previously presented) The carrier medium as recited in claim 42 wherein said second circuit is configured to determine if said first agent wins said arbitration using the agent identifiers to identify agents that generate arbitration requests.

45. (previously presented) The carrier medium as recited in claim 40 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate to place an

address on said bus.

46. (canceled)

47. (previously presented) The carrier medium as recited in claim 40 wherein said bus is a split transaction bus, and wherein said arbiter is configured to arbitrate to place data on said bus.

48. (canceled)